HP StorageWorks LTO Ultrium Tape Drives and Cartridges

Family data sheet

HP StorageWorks LTO Ultrium tape drives are the HP premier line of backup devices. Based on the Ultrium format, HP LTO tape drives offer you the superior choice for investment protection. With ultimate reliability and ease of use in mind, the HP rugged design builds on superior LTO technology and adds advanced features like dynamic data rate matching to adjust to the speed of the host, reducing wear and tear on drive and media, increasing performance and reliability. HP TapeAssure provides tape and drive management and monitoring. If data is critical to your business, protect it with HP LTO tape drives.

HP StorageWorks LTO Ultrium Tape Drives

Designed for small and medium businesses (SMBs), the HP LTO Ultrium Tape Drives set new standards for capacity, performance, manageability and security.

HP StorageWorks LTO Ultrium Tape Drives represent five-generations of LTO tape drive technology capable of storing up to 3 TB per cartridge, with HP TapeAssure for manageability, hardware data encryption and unprecedented performance.

With HP TapeAssure you can be confident that your data is safe by monitoring drive and media utilisation, operational performance and life/health information for drive and media. Data hardware encryption using AES 256-bit provides easy-to-enable security to protect the most sensitive data and prevent unauthorised access of tape cartridges. By using hardware encryption, data is fully capable of being compressed therefore maximising capacity; encrypted backups are completed without any loss in performance. Capable of data transfer rates up to 280 MB/sec, the HP exclusive data rate matching feature further optimises performance by matching host system speed to keep drives streaming, thus improving tape performance even with slow hosts.

Key features and benefits

Outstanding Capacity and Performance with Monitoring/ Management Capabilities and Hardware Encryption

Up to 3 TB capacity per cartridge
LTO Ultrium Tape Drives provide up to 3 TB of compressed capacity on a single cartridge.

Up to 1 TB/hr (280 MB/s) data transfer rate
Enables even the tightest backup window to be met with unprecedented performance.

TapeAssure
HP TapeAssure offers you the ability to make the best use of your investment and be confident that your data is safe by monitoring drive and media utilisation, operational performance and life/health information for drive and media, allowing the switch from reactive to proactive management. For more information visit: **www.hp.com/go/tapeassure**

Hardware data encryption
Provides highest level of security for strong backup data privacy to secure confidential information and address compliance quickly with fewer cartridges.

Reliable, Well Connected and Compatible

Data rate matching
Allows the tape drive to dynamically and continuously adjust to the speed of the host, keeping drives streaming even with slow hosts or slow networks and maximising performance and reducing start/stops, which significantly increase reliability of HP drives and media.

Server compatibility
HP offers a wider choice of models including internal, external and rackmount, a choice of interfaces SAS and SCSI and wider connectivity to server platform including vendors such as Dell, IBM and Sun.
To learn more visit: **www.hp.com/go/connect**

Software compatibility
Includes an extensive list of supported backup and archiving software applications from HP, CA, VERITAS, Legato, Tivoli and other applications.
To learn more visit: **www.hp.com/go/connect**

Enterprise-class reliability
Design leveraged from previous HP LTO tape drives to deliver confident backups at high duty cycles.

Complete Solution Straight out of the Box

Complete solution to protect your data
Provides HP LTO media, cleaning cartridge (with full height drives), a free copy of HP StorageWorks Data Protector Express Software Single Server Edition which includes support for hardware data encryption and OBDR, cables and documentation.

One-Button Disaster Recovery (OBDR) supported
Restores your entire ProLiant system at the touch of a button without the need for system disks or software CDs. Visit **www.hp.com/go/obdr** for the latest information.

HP StorageWorks Library and Tape Tools
Helps make installation, management and troubleshooting simple. For more details, visit **http://www.hp.com/support/tapetools**

WORM (Write-Once, Read-Many) media support
For IT organisations with stringent, long-term data retention requirements, WORM data protection capability offers a simple and secure method for archiving records allowing you to affordably meet the toughest industry compliance regulations.

HP StorageWorks LTO Ultrium Tape Drives

Recording Technology	LTO Ultrium
Capacity	3 TB Compressed 2:1 Maximum
Transfer Rate	1 TB/hr Compressed 2:1 Maximum, depending on model
Buffer Size	256 MB Maximum, depending on model
Host Interface	6 Gb/sec SAS or; 3 Gb/sec SAS or; Ultra320 LVD SCSI
Encryption Capability	AES 256-bit Depending on model
WORM Capability	Yes Depending on model
Form Factor	5.25-inch full-height; 5.25-inch half-height
Warranty	3-year, next-day, parts exchange, limited warranty, plus 9x5 phone support
Chart header	1-year limited hardware warranty; express exchange service; 1-year phone support
QuickSpec URL	**http://h18000.www1.hp.com/products/quickspecs/13572_div/13572_div.pdf**

HP LTO Ultrium Cartridges

Meet all your demands for reliable data protection, enabling full use of capacity and better ROI

HP LTO-5 Ultrium media offers the superior capacity/performance ratio of any tape technology, with terabyte-class capacity and performance. It has almost double the capacity and offers faster performance compared to LTO-4 Ultrium, with built-in encryption capability and a WORM option – with no performance overhead.

Standardising on HP LTO-5 Ultrium delivers the capacity to meet shrinking backup windows, industry-standard, AES 256-bit encryption (IEEE1619.1) and interchangeable RW or WORM media, without extra space or IT resource overhead.

Key features and benefits

Highest Capacity and Performance of any Comparable Tape Technology

Scalable storage and backup performance
HP LTO-5 Ultrium can write or read data at a blistering 1 TB/hour, storing, encrypting and protecting up to 3 TB on a single cartridge, making it an ideal choice in large-scale, 24x7, mission-critical IT environments.

High storage density and cost-effective media
Smoother base film and smaller magnetic particles increase the bit density, allowing more data to be recorded in the same amount of tape. This has, for example, increased the number of recording tracks from 896 for LTO-4 to 1280 tracks for 5th generation HP LTO-5 Ultrium 3 TB cartridges.

Intelligent cartridge design
LTO Ultrium cartridge memory chip delivers faster access time and enhanced media monitoring.

Durable
First time restore provided with fewer media failures and disrupted backups, regardless of duty cycle or environmental conditions.

Ultra-reliable

Intelligent cartridge
Superior 'smart grabber' mechanism and mechanical interlock to prevent the leader pin from being pulled inside the tape housing. Sensors detect proper connection and prevent leader loss that would ruin the tape.

Durable cartridge design
Simplified tape path to reduce wear and tear and build up of and debris (important in automation).

Tested to extremes
HP brand qualification test procedures (load/unload, shoeshine, drop testing and environmental stress testing) go far beyond what is required for the LTO Ultrium logo. This provides maximum reliability for restoring your data.

Limited lifetime warranty
HP warrants LTO Ultrium cartridges for up to 30 years archival life and/or 260 full backups. This enables businesses to meet the ever-increasing demands of regulation for data retention and archiving.

Secure

Permanent storage
WORM version provides tamperproof, compliant data storage.

Encrypted content
Data encryption for enhanced data security on HP LTO-4 and LTO-5 Ultrium.

Value for money

Very low media cost per GB
Standardising on HP LTO-4 or LTO-5 Ultrium delivers the capacity to meet shrinking backup windows, industry-standard, AES 256-bit encryption (IEEE1619.1) and interchangeable RW or WORM media – without extra space or IT resource overhead.

Flexibility and choice
Open standard technology offers compatibility across product generations and gives you more choice. Cartridges are available as Custom Labelled, Non-Custom Labelled and Non-Labelled versions to fit with your data centre management criteria.

HP LTO Ultrium Cartridges

Recording Technology	LTO-1 Ultrium, LTO-2 Ultrium, LTO-3 Ultrium, LTO-4 Ultrium, LTO-5 Ultrium
Media Labelling	Write-on Labels in box
Media Format	Re-Writable and Write-once media
Quantity per Package	1 Maximum, depending on model
Capacity	3.0 TB Compressed 2:1 Maximum, depending on model
Read Speed	280 MB/sec Maximum, depending on media type
Product Colour	LTO-1 medium blue; LTO-2 red; LTO-3 yellow; LTO-4 green; LTO-5 light blue
Tape Length	846 m Maximum, depending on model
Tape Width (Metric)	12.65 mm
Tape Thickness	6.4 um Minimum, depending on model
Base Film Type	Metal Particle
Bit Density	343 Kb/in Maximum, depending on model
Number of Data Tracks	1280 Maximum, depending on model
Magnetic Layer Coercivity	2850 Oe Maximum, depending on model
Archival Storage Life	30 years
Media Durability	1,000,000 passes on any area of tape, equates to over 20,000 end to end passes/260 full tape backups
Drive Compatibility	Storage Media Compatibility Matrix: **http://www.hptapecompat.com**
Warranty Standard Statement	Limited Lifetime
QuickSpec URL	**http://h18006.www1.hp.com/products/quickspecs/11529_div/11529_div.pdf**

The Total Package – Software

HP Data Protector Express Single Server Edition Software

Both HP StorageWorks Data Protector Express Software Single Server Edition and the HP Data Protector Express Software Bare Metal Disaster Recovery (BMDR) option are included in the box. These are easy-to-use backup applications to protect a single Windows®, Linux or NetWare server. The BMDR option provides automated system recovery of the server following a major hardware or software failure. The fastest method to recovery of the server is to use the Data Protector Express Software BMDR option with the OBDR feature of the HP StorageWorks LTO Ultrium Tape Drive family.

The Total Package – Solution Value Statements

HP ProLiant Server and HP LTO Ultrium Tape Drives

StorageWorks LTO Ultrium Tape Drives are ideal for use with HP ProLiant servers, providing reliable, affordable data protection for ProLiant customers. Tape Drives, with up to 3 TB stored on a single LTO-5 cartridge in around 3 hours providing a balance of price and performance for medium and enterprise business environments.

In addition, ProLiant customers using an iLO or RiLo card can take advantage of the remote restore functionality of HP OBDR, allowing customers to restore a ProLiant server remotely.

HP Technology Services

HP Technology Services – the trusted business technology experts who manage your technology in action, because when technology works, business works.

Partner with HP to boost availability and avoid costly downtime by mitigating technology-related business risks. To help take the worry out of deploying, supporting and managing your HP StorageWorks LTO Ultrium Tape Drives storage solution, we have designed a range of service options that are as flexible, scalable and affordable as our storage.

Exceptional reliability and performance

HP LTO Ultrium tape technology has been designed to deliver exceptional reliability and performance at the lowest cost per GB. The LTO Ultrium format builds on the best of existing technologies; open standards increase innovation and widen customer choice in terms of performance, capacity and form factor. Exhaustively tested, HP LTO Ultrium cartridges meet all your demands for maximum reliability when restoring data, offering high storage density, ease of management and scalable storage and backup performance.

Service and support

HP Factory Express

HP Factory Express is designed to help you get a better return from your IT investment by providing customisation, integration and deployment services along with your storage and server purchases. It provides predictable, trusted and tested IT solutions tailored to your business needs. We allow you to customise hardware to your exact specifications in the factory – helping to speed up deployment and free up internal resources. To learn more, visit **www.hp.com/go/factoryexpress**

Customer technical training

Consider education as an integral part of your strategy to get better return on investment from your HP storage solution. HP offers a variety of training courses on storage software, networking, archiving and disk storage systems. Our classes are available in many delivery modalities from traditional instructor-led courses at one of our 80 training centres worldwide to onsite training customised to your needs, or online at **www.hp.com/learn/storage**

HP Financial Services

HP Financial Services provides innovative financing and financial asset management programmes to help you cost-effectively acquire, manage and ultimately retire your HP solutions. For more information on these services, please contact your HP representative or visit **www.hp.com/go/hpfinancialservices**

HP Services

HP Technology Services helps take the worry out of deploying, supporting and managing your HP StorageWorks LTO Ultrium storage solution – trust the services professionals at HP to boost availability and avoid costly downtime.

Recommended Services

- **3-Year HP Support Plus 24 Service**: For a higher return on your storage technology, this 3-year combined reactive support option delivers integrated onsite hardware/software support services available 24x7.
- **HP Installation Service**: For smooth start-up and better business outcomes, this service provides initial hardware installation of your product into your technology environment (system configuration is not included).

Related Services

- **HP Proactive Select Service**: To improve IT performance and manageability through the use of cost effective flexible proactive services
- **HP Care Pack Services**: Information about HP Care Pack Service features and benefits is available at **www.hp.com/hps/carepack/services**

For more information about HP services and support, contact your HP sales representative or HP-authorised Channel Partner or, visit **www.hp.com/hps/storage**

To understand how HP StorageWorks LTO Ultrium tape drive and cartridge technology can meet your demands for reliable data protection and security, please visit: **www.hp.com/go/tape**

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